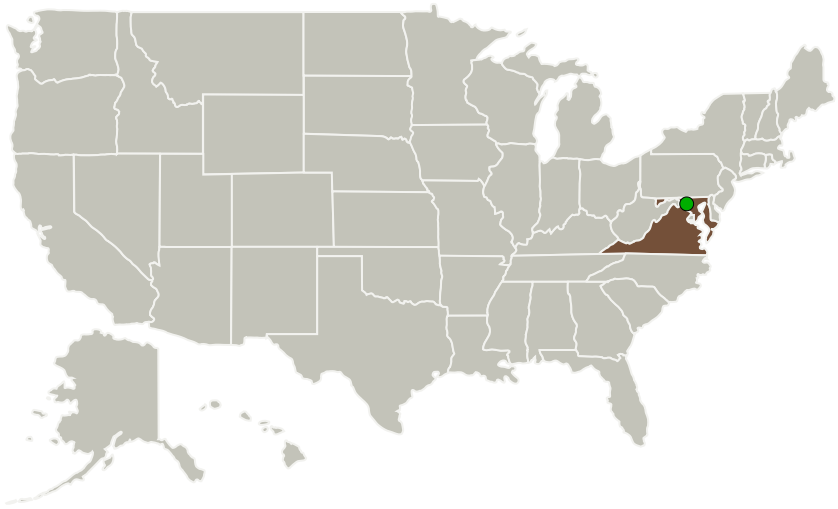
Robust Microfabricated Interconnect Technologies: DC to THz, Phase II

Completed Technology Project (2016 - 2018)

Project Introduction

To meet the needs of future NASA Earth science objectives, significant advancements in the overall level of integration and functional density that is achievable in multi-band microwave radar and radiometer instruments are proposed. The targeted system is the Wideband Instrument for Snow Measurements (WISM), which is a technology development effort to measure Snow Water Equivalent that targets the requirements of the proposed Snow and Cold Land Processes Mission. During Phase I, we developed concepts for enhancing the WISM by incorporating signal multiplexing and active devices in the PolyStrata antenna feed that are not present in the baseline version of the instrument. On the Phase II program, we propose to demonstrate these enhancements to the WISM with deliverable hardware prototypes of such active multi-band feed antennas. Drastic improvements in system noise figure and overall size are made possible by integrating the first stage of LNAs into the PolyStrata feed antenna, eliminating additional cable and diplexer losses that occur in the current modular system.

Primary U.S. Work Locations and Key Partners



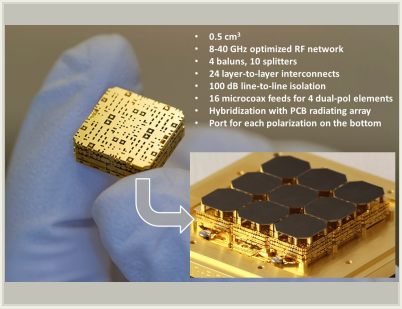


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Table of Contents

Small Business Innovation Research/Small Business Tech Transfer

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Organizations Performing Work	Role	Type	Location
Nuvotronics, Inc	Lead Organization	Industry	Radford, Virginia
Goddard Space Flight Center(GSFC)	Supporting Organization	NASA Center	Greenbelt, Maryland

Primary U.S. Work Locations	
Maryland	Virginia

Project Transitions

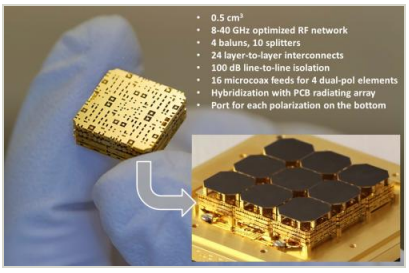
May 2016: Project Start

May 2018: Closed out

Closeout Documentation:

- Final Summary Chart*(https://techport.nasa.gov/file/139522)*

Images



Briefing Chart Image
Robust Microfabricated Interconnect Technologies: DC to THz, Phase II
(https://techport.nasa.gov/image/128649)

Organizational Responsibility

Responsible Mission Directorate:
Space Technology Mission Directorate (STMD)

Lead Organization:
Nuvotronics, Inc

Responsible Program:
Small Business Innovation Research/Small Business Tech Transfer

Project Management

Program Director:
Jason L Kessler

Program Manager:
Carlos Torrez

Principal Investigator:
Scott A Meller

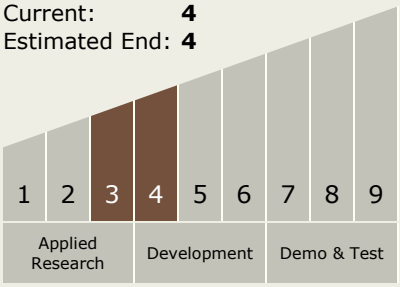
Co-Investigator:
Benjamin W Cannon

Robust Microfabricated Interconnect Technologies: DC to THz, Phase II

Completed Technology Project (2016 - 2018)

Technology Maturity (TRL)

Start: **3**
Current: **4**
Estimated End: **4**



Technology Areas

Primary:

- TX08 Sensors and Instruments
  - TX08.1 Remote Sensing Instruments/Sensors
    - TX08.1.4 Microwave, Millimeter-, and Submillimeter-Waves

Target Destinations

The Sun, Earth, The Moon, Mars, Others Inside the Solar System, Outside the Solar System